

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (currently amended): An apparatus for generating a coherent laser beam from an emission of a series of diode lasers comprising a diode array, the apparatus comprising:

at least one row of source diodes; and

a system for transforming the primary light emission emitted by the source diodes into secondary coherent light emission, said system comprising:

a photorefractive crystal;

a hologram comprising a recording of an interference pattern of said primary light emission and said secondary coherent light emission; and

a mirror disposed in a path of said secondary coherent light emission, said mirror reflecting at least some of said secondary coherent light emission via said hologram to said diode lasers so as to act as a feedback signal to secure phase-locking thereof;

wherein said hologram is arranged in such a manner that when said hologram is illuminated with said primary light emission, said secondary coherent light emission is a reconstructed light emission by said hologram.

Claim 2. (currently amended): A method for generating a coherent laser beam from an emission of a series of diode lasers comprising a diode array, comprising the steps of:

generating primary light emission with the aid of the diode lasers;

transforming the primary light emission into secondary coherent light emission by illuminating a hologram with the primary light emission; the hologram containing a recording of interference pattern of the primary light emission and the secondary coherent light emission; said secondary coherent light emission created using photorefractive phase conjugation; and

reflecting at least some of the secondary coherent light emission to the hologram for the generation of tertiary light emission, which beams in an opposite direction to the primary light emission but has a same phase as a phase of the primary light emission; and

wherein the tertiary light emission is used as provider of a feedback signal for the diode lasers.

Claim 3. (previously presented): A method for making a hologram for generating a coherent laser beam from an emission of a series of diode lasers, the method comprising;

generating primary light emission with the aid of the diode lasers comprising a diode array;

directing the primary light emission at an at least partly permeable recording medium for recording an interference pattern;

concentrating and directing the primary light emission that has passed through the recording medium at an element selected from the list consisting of a photorefractive crystal in a self-pumped configuration, and a crystal that is fed by a pump beam such that the photorefractive crystal returns a light emission that is phase-conjugated with the primary light emission to the diode array in order to provide the diode lasers with a feedback signal; and

directing a reference signal at the recording medium so that together with the primary light emission, it can form the interference pattern for recording in the hologram.

Claim 4. (previously presented): A method according to claim 3, wherein the primary light emission that has passed through the recording medium is concentrated by a lens.